



COURSE OUTLINE

1. **Course:** ACSC 327, Life Contingencies I - Spring 2021

Lecture 01: MW 18:00 - 20:45 - Online

Instructor	Email	Phone	Office	Hours
Dr. Sang Kang	sangjin.kang@ucalgary.ca	N/A	VIA ZOOM	After live Zoom meeting & Monday 4 pm to 6 pm during the quizzes and term exams

This course is accredited under the Canadian Institute of Actuaries (CIA) University Accreditation Program (UAP). Achievement of the minimum required grades in accredited courses may provide credit for preliminary exams. Please note that a combination of courses may be required to achieve exam credit.

Online Delivery Details:

Some aspects of this course are being offered in real-time via scheduled meeting times. For those aspects you are required to be online at the same time.

To help ensure Zoom sessions are private, do not share the Zoom link or password with others, or on any social media platforms. Zoom links and passwords are only intended for students registered in the course. Zoom recordings and materials presented in Zoom, including any teaching materials, must not be shared, distributed or published without the instructor’s permission.

This course has a registrar scheduled, synchronous final exam. The writing time is 2 hours + 50% buffer time.

ACSC 327 constitutes synchronous live Zoom sessions and asynchronous pre-recorded video content.

***The synchronous component**

The live Zoom sessions will be a combination of TopHat questions participation (every Wednesday except the first orientation date) and lecture for important concepts or software application.

Here is the schedule for the live Zoom meetings:

Date	Time
May 5 (Wed)	6 pm~8:30 pm
May 10 (Mon)	6 pm~8:30 pm
May 12 (Wed)	6 pm~8:30 pm
May 19 (Wed)	6 pm~8:30 pm
May 26 (Wed)	6 pm~8:30 pm
June 2 (Wed)	6 pm~8:30 pm
June 9 (Wed)	6 pm~8:30 pm
Jun 14 (Mon)	6 pm~8:30 pm
Jun 16 (Wed)	6 pm~8:30 pm

*** The asynchronous component**

A series of pre-recorded video clips and lecture PPT slides will be available each week. Students can engage with the learning process and choose to progress through the course materials at their own pace.

* **Academic Integrity:** Due to the unique remote learning environment, we find the possibilities of cheating is a large concern for instructors and students alike. The basic mind-set is to ensure trust between instructor and student. Additionally, for students to follow guidelines and use common sense when engaging with their term work. A great resource to refer to is [Academic Integrity for students by Taylor Institute for Teaching and Learning](#)

Course Site:

D2L: ACSC 327 L01-(Spring 2021)-Life Contingencies I

Note: Students must use their U of C account for all course correspondence.

2. Requisites:

See section [3.5.C](#) in the Faculty of Science section of the online Calendar.

Prerequisite(s):

Statistics 321.

Although ACSC 325 is not an official prerequisite course, students should fully understand the concept of the present value, the present value of an annuity immediate, and the present value of an annuity due.

3. Grading:

The University policy on grading and related matters is described in [F.1](#) and [F.2](#) of the online University Calendar.

In determining the overall grade in the course the following weights will be used:

Component(s)	Weighting %	Date
TopHat participations	3%	Every Wednesday during the live Zoom session
Spreadsheet assignment	2%	To be discussed on the orientation date
Two quizzes *	10%	7 pm -- 7:45 pm on May 17 (Mon) and May 31 (Mon)
Mid-term exam 1 **	20%	7 pm -- 8:45 pm on May 24 (Mon)
Mid-term exam 2 **	20%	7 pm -- 8:45 pm on June 7 (Mon)
Final exam ***	45%	To be scheduled by Registrar

* Two quizzes are synchronous and include 30 minutes for writing and 15 minutes of buffer time (Refer to the Examination Policy for the reason of 15 mins buffer time).

** Two mid-term exams are synchronous and include 1 hours and 30 minutes for writing and 15 minutes of buffer time (Refer to the Examination Policy for the reason of 15 mins buffer time).

*** The final exam is are synchronous and includes 2 hours and 30 minutes for writing and 15 minutes of buffer time (Refer to the Examination Policy for the reason of 15 mins buffer time).

Quizzes and term exams: All administered through GradeScope. Make sure to get used to the exam environment through GradeScope, along with possible issues to avoid.

Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a grade. The student's grade for each component listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

The conversion between a percentage grade and letter grade is as follows.

	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
Minimum % Required	95 %	90 %	85 %	80%	75%	70 %	65 %	60%	55%	52 %	50 %

This course will have a final exam that will be scheduled by the Registrar. [The Final Examination Schedule](#) will be published by the Registrar's Office approximately one month after the start of the term. The final exam for this course will be designed to be completed within 2 hours.

The final exam will be administered using an on-line platform. Per section [G.5](#) of the online Academic Calendar, timed final exams administered using an on-line platform, such as D2L, will be available on the platform. Due to the scheduling of the final exams, the additional time will be added to **the end** of the registrar scheduled **synchronous** exam to support students. This way, your exam schedule accurately reflects the **start time** of the exam for any **synchronous** exams. E.g. If a **synchronous** exam is designed for 2 hours and the final exam is scheduled from 9-11am in your student centre, the additional time will be added to the **end** time of the **synchronous** exam. This means that if the exam has a 1 hour buffer time, a synchronous exam would start at 9 am and finish at 12pm.

4. Missed Components Of Term Work:

The university has suspended the requirement for students to provide evidence for absences. Please do not attend medical clinics for medical notes or Commissioners for Oaths for statutory declarations.

In the event that a student legitimately fails to submit any online assessment on time (e.g. due to illness etc...), please contact the course coordinator, or the course instructor if this course does not have a coordinator to arrange for a re-adjustment of a submission date. Absences not reported within 48 hours will not be accommodated. If an excused absence is approved, one possible arrangement is that the percentage weight of the legitimately missed assignment could also be pro-rated among the components of the course. This option is at the discretion of the coordinator and may not be a viable option based on the design of this course.

5. **Scheduled Out-of-Class Activities:**

There are no scheduled out of class activities for this course.

6. **Course Materials:**

Required Textbook(s):

David C.M. Dickson, Mary R. Hardy, and Howard R. Waters, *Actuarial Mathematics for Life Contingent Risks, 3rd Edition*: Cambridge University Press.

[LTAM \(Long-term Actuarial Mathematics\) Introductory Study Note](#)

This note contains the link for the past multiple choice and written-answer questions in the LTAM exam.

In order to successfully engage in their learning experiences at the University of Calgary, students taking online, remote and blended courses are required to have reliable access to the following technology:

- A computer with a supported operating system, as well as the latest security, and malware updates;
- A current and updated web browser;
- Webcam/Camera (built-in or external);
- Microphone and speaker (built-in or external), or headset with microphone;
- Current antivirus and/or firewall software enabled;
- Stable internet connection.

For more information please refer to the UofC [ELearning](#) online website.

7. **Examination Policy:**

Only non-programmable calculators may be used for the midterm and final exam.

The following (SOA exam) models of Texas Instruments are strongly recommended:

- BA-35
- BA II Plus
- BA II Plus Professional
- TI-30Xa
- TI-30X II
- TI-30XS Multiview

Students should also read the Calendar, [Section G](#), on Examinations.

As this course is a CIA accredited course, we need to follow two of the preferred practices given in the [CIA UAP](#).

1. Exams will be published online at the same time for all candidates, with a total publication and completion time limit corresponding to the exam duration plus a limited period of about 15 minutes for upload if paper answers are to be uploaded. Exceptions will be made only to students who have SAS accommodations and/or students who are living in different time zones; these will be handled on a case by case basis.
2. You will be required to sign the following statement based on honor on each assessment:

"I understand that this assessment is part of an accredited course under the University Accreditation Program of the Canadian Institute of Actuaries (CIA). In addition to the University rules governing academic integrity, I understand that I am subject to the Code of Conduct and Ethics for Candidates in the CIA Education System and related policy. I swear on my honor to have completed the work on my own and in accordance with the assessment's rules and instructions."

8. **Approved Mandatory And Optional Course Supplemental Fees:**

There are no mandatory or optional course supplemental fees for this course.

9. Writing Across The Curriculum Statement:

For all components of the course, in any written work, the quality of the student's writing (language, spelling, grammar, presentation etc.) can be a factor in the evaluation of the work. See also Section [E.2](#) of the University Calendar.

10. Human Studies Statement:

Students will not participate as subjects or researchers in human studies.

See also [Section E.5](#) of the University Calendar.

11. Reappraisal Of Grades:

A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See [Section I.3](#) of the University Calendar.

- a. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **ten business days** of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall submit the Reappraisal of Graded Term work form to the department in which the course is offered within 2 business days of receiving the decision from the instructor. The Department will arrange for a reappraisal of the work within the next ten business days. The reappraisal will only be considered if the student provides a detailed rationale that outlines where and for what reason an error is suspected. See sections [I.1](#) and [I.2](#) of the University Calendar
- b. **Final Exam:** The student shall submit the request to Enrolment Services. See [Section I.3](#) of the University Calendar.

12. Other Important Information For Students:

- a. **Mental Health** The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, [Mental Health Services Website](#)) and the Campus Mental Health Strategy website ([Mental Health](#)).
- b. **SU Wellness Services:** For more information, see www.ucalgary.ca/wellnesscentre or call [403-210-9355](tel:403-210-9355).
- c. **Sexual Violence:** The Sexual Violence Support Advocate, Carla Bertsch, can provide confidential support and information regarding sexual violence to all members of the university community. Carla can be reached by email (syasa@ucalgary.ca) or phone at [403-220-2208](tel:403-220-2208). The complete University of Calgary policy on sexual violence can be viewed at (<https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf>)
- d. **Misconduct:** Academic integrity is the foundation of the development and acquisition of knowledge and is based on values of honesty, trust, responsibility, and respect. We expect members of our community to act with integrity. Research integrity, ethics, and principles of conduct are key to academic integrity. Members of our campus community are required to abide by our institutional [Code of Conduct](#) and promote academic integrity in upholding the University of Calgary's reputation of excellence. Some examples of academic misconduct include but are not limited to: posting course material to online platforms or file sharing without the course instructor's consent; submitting or presenting work as if it were the student's own work; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; borrowing experimental values from others without the instructor's approval; falsification/fabrication of experimental values in a report. Please read the following to inform yourself more on academic integrity:

[Student Handbook on Academic Integrity](#)
Student Academic Misconduct [Policy](#) and [Procedure](#)
[Research Integrity Policy](#)

Additional information is available on the [Student Success Centre Academic Integrity page](#)

- e. **Academic Accommodation Policy:** Students needing an accommodation because of a disability or medical condition should contact Student Accessibility Services in accordance with the procedure for accommodations for students with disabilities available at [procedure-for-accommodations-for-students-with-disabilities.pdf](#).

Students needing an accommodation in relation to their coursework or to fulfill requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Associate Head of the Department of Mathematics & Statistics, Mark Bauer by email bauerm@ucalgary.ca or phone 403-220-4189. Religious accommodation requests relating to class, test or exam scheduling or absences must be submitted no later than **14 days** prior to the date in question. See [Section E.4](#) of the University Calendar.

- f. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). Students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information, see [Legal Services](#) website.
- g. **Student Union Information:** [VP Academic](#), Phone: [403-220-3911](tel:403-220-3911) Email: suvpaca@ucalgary.ca. SU Faculty Rep., Phone: [403-220-3913](tel:403-220-3913) Email: sciencerep@su.ucalgary.ca. [Student Ombudsman](#), Email: ombuds@ucalgary.ca.
- h. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction ([USRI](#)) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these surveys.
- i. **Copyright of Course Materials:** All course materials (including those posted on the course D2L site, a course website, or used in any teaching activity such as (but not limited to) examinations, quizzes, assignments, laboratory manuals, lecture slides or lecture materials and other course notes) are protected by law. These materials are for the sole use of students registered in this course and must not be redistributed. Sharing these materials with anyone else would be a breach of the terms and conditions governing student access to D2L, as well as a violation of the copyright in these materials, and may be pursued as a case of student academic or [non-academic misconduct](#), in addition to any other remedies available at law.
- j. **Canadian Institute of Actuaries Ethics:** In addition to the university's internal policies on conduct, including academic misconduct ([Section K of the online calendar](#)), candidates pursuing credits for writing professional examinations shall also be subject to the Code of Conduct and Ethics for Candidates in the CIA Education System and the associated Policy on Conduct and Ethics for Candidates in the CIA Education System. For more information, please visit [Obtaining UAP Credits and the CIA FAQ](#).

Course Outcomes:

- Calculate and interpret standard probability functions including survival and mortality probabilities, force of mortality, and complete and curtate expectation of life. Compute higher order moments and percentiles associated to the future lifetime and the curtate future lifetime random variables
- Compute and interpret standard probability functions based on general life tables. Use fractional age assumptions to compute these quantities for all ages and durations. Construct and interpret survival models for cohorts consisting of non-homogeneous populations, for example, smokers and nonsmokers or ultimate-and-select groups
- Derive formulae for the valuation of traditional insurance benefits. Compute and interpret probabilities, means, percentiles and higher-order moments associated to the random variables representing the present values of these benefits.
- Derive formulae for the valuation of life contingent annuities. Compute and interpret probabilities, means, percentiles and higher-order moments associated to the random variables representing the present values of these annuities.
- Compute net and gross premiums for insurance policies and annuities using various premium principles. Calculate and interpret probabilities, means, percentiles and higher-order moments of random variables associated with these premiums, including loss-at-issue random variables

Electronically Approved - May 17 2021 13:55

Department Approval